

I CLAIM:

1 1. A hydrocyclone for separating solid particles from
2 a particle-carrying fluid, the hydrocyclone comprising:

3 a housing having an inner surface defining a chamber;
4 means including a port opening into the chamber for
5 admitting the particle-carrying fluid into the chamber for
6 forming therein a vortex flow of the fluid; and

7 a tube connected axially to the housing, forming an
8 outlet therefor and having an inner surface, the inner surfaces
9 of the tube and housing being composed of a hard material
10 consisting essentially of tungsten-carbide particles in a
11 metallic binder having a nickel content of at most 12% and a
12 chromium content equal to at most 15% of the nickel content.

1 2. The hydrocyclone defined in claim 1 wherein the
2 chromium content is equal to between 0.5% and 10% of the nickel
3 content.

1 3. The hydrocyclone defined in claim 1 wherein the
2 metallic binder has a nickel content of about 8.5% and a chromium
3 content of about 1.3%.

1 4. The hydrocyclone defined in claim 1 wherein the
2 hard material also consists of other carbides selected from the
3 group comprised of titanium carbide, niobium carbide, tantalum
4 carbide, chromium carbide, and molybdenum carbide.

1 5. The hydrocyclone defined in claim 1 wherein the
2 particles have an average particle size of between 0.1 μm and
3 2.5 μm .

1 6. The hydrocyclone defined in claim 1 wherein the
2 particles have a density between 14.4 g/cm^3 and 15.2 g/cm^3 .

1 7. The hydrocyclone defined in claim 1 wherein the
2 particles have a hardness of at least 1700 HV10.

1 8. The hydrocyclone defined in claim 1 wherein the
2 particles have
3 an average particle size of between 0.15 μm and
4 0.5 μm ;
5 a density between 14.0 g/cm^3 and 15.0 g/cm^3 ; and
6 a hardness between 1700 HV10 and 1800 HV10.

1 9. The hydrocyclone defined in claim 8 wherein th
2 particles have a density of about 14.55 g/cm³.

1 10. The hydrocyclone defined in claim 8 wherein the
2 particles have a hardness of about 1760 HV10.

1 11. The hydrocyclone defined in claim 10 wherein the
2 particles are a powder-metallurgically produced sintered hard
3 material.